REMARKS

The Examiner has objected to the drawings, the specification and the claims. The Examiner has rejected claims 1 through 26, 29 through 39 and 42 through 44 under 35 U.S.C. §102(b). Lastly, the Examiner has rejected claims 13, 14, 27, 28, 40 and 41 under 35 U.S.C. §103(a). In view of the above amendments and the following remarks, the Applicant respectfully requests the Examiner to reconsider the withdrawal of the currently pending objection and rejections.

The Objections

The Examiner has objected to Figure 1 for missing reference numeral 10 as stated on line 15 in page 4 of the current application. Accordingly, Figure 1 has been amended to incorporate the reference numeral. In addition, Figure 4 has been also amended as will be explained below.

The Examiner has objected to the specification on pages 5, 6, 7, 10 and 12. The specification has been amended as kindly suggested by the Examiner except for page 6. In stead of amending the references, "an outline intensity correction unit 25a" on line 10 and "a non-outline intensity correction unit 25b" on line 10-11, Figure 2 has been amended to incorporate the above references.

The Examiner has objected to claim 9, 40, 41, 42, 43, 44 and 45. Claim 9 has been amended as the Examiner kindly suggested. In addition, since the Examiner noted in the Office Action in Paragraph 6, the above claims 40, 41, 42, 43, 44 and 45 "have been renumbered 39, 40, 41, 42, 43 and 44," the Applicant assumes that the above renumbered claims have been already amended by the Examiner's amendment. The listing of the corresponding claims thus now indicate "(previously presented)" with the corrected numbers.

In view of the above amendments and remarks, the Applicant respectfully submits that the pending objections should be withdrawn.

The Section 102(b) Rejections

The Examiner has rejected claims 1 through 26, 29 through 39 and 42 through 44 under 35 U.S.C. §102(b) as allegedly being anticipated by the Ueta et al. reference. The Examiner has pointed out that every element of the above claims has been disclosed by the Ueta et al. reference. Although the Applicant does not necessarily agree with the Examiner's characterization of the cited reference, independent claims 1, 15 and 29 have been amended to respectively incorporate the subject matter limitations of dependent claims 14, 28 and 41 that have been now canceled.

Newly amended independent claims 1, 15 and 29 now each explicitly recite "an outline characteristics including edge information on vertical, horizontal, right and left relative position of the outline portion in the image data." The newly amended independent claims 1, 15 and 29 further explicitly recite "selecting a correction coefficient from a set of predetermined correction coefficients based upon said outline characteristics." In other words, the current invention as explicitly recited in newly amended independent claims 1, 15 and 29 determines the "vertical, horizontal, right and left relative position of the outline portion in the image data" and selects "a correction coefficient" according to "said outline characteristics."

In contrast to the above discussed patentable feature of the current invention, as the Examiner admits in the Office Action in Paragraph 10 with respect to the section 103 rejection that the Ueta et al. reference only suggests the direction information and fails to anticipate the patentable features of newly amended independent claims 1, 15 and 29. Similarly, dependent claims 2 through 13, 16 through 26, 30 through 39 and 42 through 44 ultimately depend from one of newly amended independent claims 1, 15 and 29 and incorporate the patentable features of the newly amended independent claims. Therefore, the Applicant respectfully submit to the

Examiner that the rejection of claims 1 through 26, 29 through 39 and 42 through 44 under 35 U.S.C. §102(b) should be withdrawn.

The Section 103(a) Rejections

The Examiner has rejected claims 13, 14, 27, 28, 40 and 41 under 35 U.S.C. §103(a) as allegedly being obvious over the Ueta et al. reference in view of the Kawamura et al. reference. As discussed above with respect to the section 102 rejections, the Examiner in Paragraph 10 of the Office Action stated for the rejection of claims 13 and 14 that "a special arrangement can contain a direction between two elements" based upon the disclosure of the Ueta et al. reference. Furthermore, the Examiner in the same paragraph cited the Kawamura et al. reference for disclosing, teaching suggesting "a particular direction" of claim 13 or "a right edge, a left edge, a horizontal edge and a vertical edge" of now cancelled claim 14.

As already discussed above, newly amended independent claims 1, 15 and 29 now each explicitly recite "an outline characteristics including edge information on vertical, horizontal, right and left relative position of the outline portion in the image data" and "selecting a correction coefficient from a set of predetermined correction coefficients based upon said outline characteristics." The edge information includes the "vertical, horizontal, right and left relative position of the outline portion in the image data."

The Kawamura et al. reference discloses the "image signal interpolation." As disclosed with respect to Fig 1 of the Kawamura et al. reference, a portion of the image data is examined at a time to determine whether or not the portion contains a pattern as illustrated in sets PN1h, PN1v, PN0 and PN2h in order to perform one of the predetermined interpolation processes including the horizontal edge process S5, the vertical edge process S6 and the no-edge process S7. As further described in columns 7 and 8 of the Kawamura et al. reference, the first judgment in Step S1 is to determine whether or not the equation (9) is satisfied. If the equation (9) is satisfied, the image data contains the block pattern PN1 as shown in Fig 5A. On the other hand,

if the equation (9) is not satisfied, the image data contains the block pattern PN2 as shown in Fig 5B or the block pattern PN0 as shown in Fig 5C. The equation (9) can roughly distinguish one edge area containing one line only within the image block. Similarly, the second judgment in Step S2 is to determine whether or not the equation (11) is satisfied. If the equation (11) is satisfied, the image data contains the horizontal edge block pattern PN1h as shown in Fig 5A. On the other hand, if the equation (11) is not satisfied, the image data contains the vertical edge block pattern PN1v as shown in Fig 5A. The equation (11) can distinguish a rough pattern of a vertical or horizontal edge only within the image block. The third judgment in Step S3 is to determine whether or not the equation (13) is satisfied. If the equation (13) is satisfied, the image data contains the block pattern PN2 as shown in Fig 5B. On the other hand, if the equation (13) is not satisfied, the image data contains the block pattern PN0 as shown in Fig 5C. The equation (13) can distinguish a certain rough pattern only within the image block, and the pattern is not necessary an edge. Lastly, the fourth judgment in Step S4 is to determine whether or not the equation (15) is satisfied. If the equation (15) is satisfied, the image data contains the horizontal edge block pattern PN2h as shown in Fig 5B. On the other hand, if the equation (15) is not satisfied, the image data contains the vertical edge block pattern PN2v as shown in Fig 5B. The equation (15) can distinguish a rough pattern of a vertical or horizontal edge only within the image block. As described above, in the Kawamura et al. reference, the second and fourth judgments determines whether or not an image block contains certain predetermined vertical and horizontal edge patterns. The Kawamura et al. reference fails to disclose, teach or suggest any information on the right or left relative position of the edge within the image block.

The above Kawamura et al. disclosure is limited to the identification of the patterns within the image block. In sharp contrast to "image block" of a predetermined pixel size, newly amended independent claims 1, 15 and 29 now each explicitly recite "an outline characteristics including edge information on vertical, horizontal, right and left relative position of the outline portion in the image data." Furthermore, newly amended independent claims also each explicitly recite "right and left relative position" of the outline portion. In this regard, for example, the

same vertical process S6 is applied to various edge block patterns and fails to distinguish any of the individual patterns in the set PN1v or PN2v.

Based upon the above discussed reasons, even if the Ueta et al. reference and the Kawamura et al. reference are combined, the combined disclosures fail to disclose, teach or suggest the essence of the explicitly recited patentable features of newly amended claims 1, 15 and 29. Dependent claims 14, 28 and 41 have been now canceled. Dependent claims 13, 27 and 40 ultimately depend from one of newly amended independent claims 1, 15 and 29 and incorporate the patentable features of the newly amended independent claims. Thus, it would not have been obvious to one of ordinary in the art to provide the above discussed patentable feature of the relative position including right and left to select a processing coefficient based upon the prior art. Therefore, the Applicant respectfully submit to the Examiner that the rejection of claims 13, 27 and 40 under 35 U.S.C. §103(a) should be withdrawn.

Conclusion

In view of the above amendments and the foregoing remarks, Applicant respectfully submits that all of the pending claims are in condition for allowance and respectfully request a favorable Office Action so indicating.

Respectfully submitted,

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Amendments to the Drawings:

The attached drawing sheets include changes to Figs. 1 and 2. These sheets replace the originally filed sheets of Figs. 1 and 2.

In Fig. 1, reference number 10 has been added above the image processing apparatus.

In Fig. 2, reference number 25a has been added outside of the element "OUTLINE CORRECTION UNIT." Also in Fig. 2, reference number 25b has been added outside of the element NON-OUTLINE CORRECTION UNIT."

Attachment: Replacement Sheets
Annotated Version

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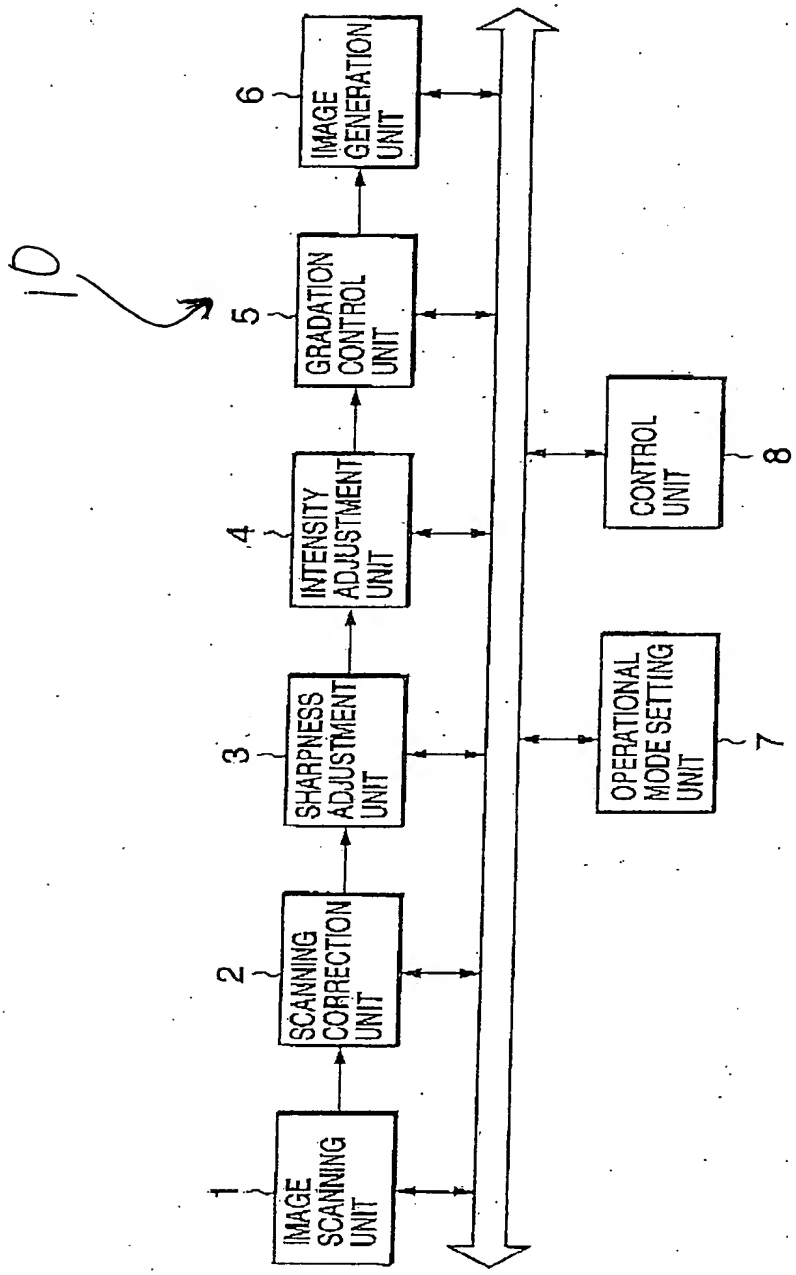
Fig.1



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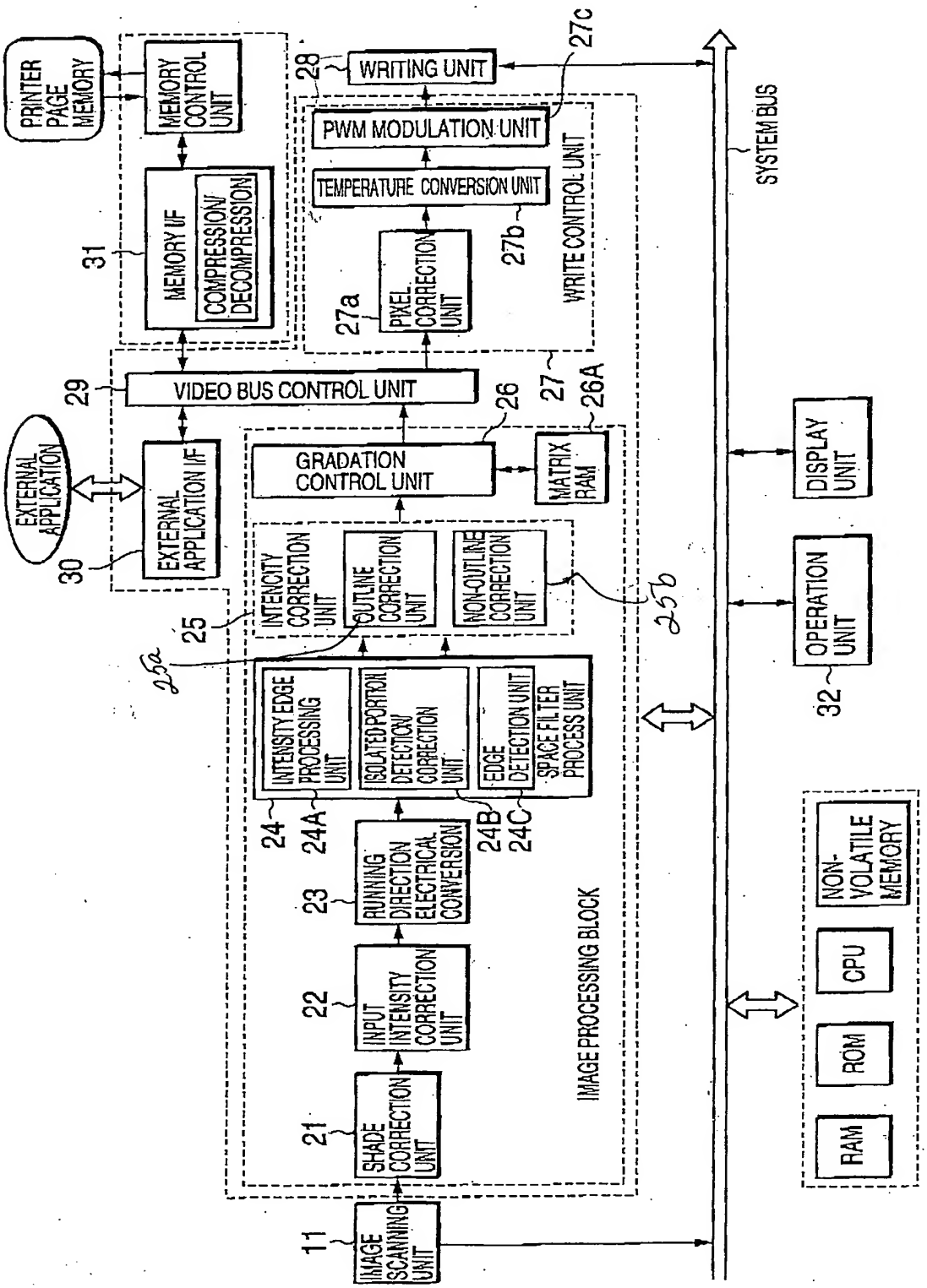
Fig.2